From: Amy Brownell

**Sent:** Thursday, March 17, 2011 1:38 PM

To: Kito, Melanie R CIV NAVFAC SW; jeff.giangiuli@calibresys.com;

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**PMO West** 

**CC:** dcshipman@treadwellrollo.com; sreinis@treadwellrollo.com; cnglenn@treadwellrollo.com;

JJFenton@mactec.com; drathnayake@mactec.com; RBrandt@Geosyntec.com;

stephen.proud@lennar.com; JAustin@Geosyntec.com; Suzanne.Hudson@lennar.com;

DRSmallbeck@mactec.com; Andrea Bruss

**Subject:** Re: March 24 - 1:30 pm technical scope of SFRA obligations

Attachments: SFRA Annual Inspections and long term obligations Parcels B G Scope and Reg

Agency costs.xls; m11-12 OMB A94.pdf

### Hi Navy team:

As we've discussed, we'll be meeting on March 24 to discuss scope of long term obligations for ETCA grant. In addition, we need to discuss the Regulatory Agency costs. I sent an email (copied below) on February 1 with Regulatory Agency Costs.

Agenda for March 24 meeting at CH2MHill offices in Oakland is:

Review of Meeting Objectives

Regulatory Agency costs

Review of scope items required in RD that continue after ten years: gw monitoring (B), well abandonment and gw closure (B), public involvement (B), O&M of durable cover (B&G) and shoreline revetment (B), five year reviews (B&G)

Annual Inspection and Reporting

ETCA Administrative Support

Escrow Fees and Required Audits

Strategy for discussion with Regulatory Agencies

We will be discussing the technical scope of the "long term" obligations that will be transferred to SFRA. In general, these obligations include the concepts of the SFRA annual inspections required to verify compliance with RMPs and that durable covers are still in place, along with five year reviews, long term groundwater monitoring, O&M requirements from RDs etc, etc This is an issue that impacts all future property transfers at HPS except for Parcel D-2 so it is not specifically an early transfer issue. In order to focus our discussion on March 24, we'll concentrate on Parcels B and G "long term" obligations because those are the ones we have spent the most time analyzing and discussing in some of our large group meetings. But the hope is that this conversation will be the beginning of process to get agreement from all parties on the scope of these issues that will impact all future transfers (except D-2). After we have agreed on the technical details between Navy and SFRA, we'll strive to agree on a strategy for discussing with Regulatory Agencies.

I've attached a read-only workbook with three sheets:

Update to Regulatory Agency Costs using new OMB rates - exact same details from Feb 1 email and attachment - only change is OMB rates Parcel B annual inspection and "long term" scope Parcel G annual inspection and "long term" scope

In addition, I've attached a copy of the update to OMB rates.

I will send on late Friday the Mactec Scope Tables for the years 0-10 which we might need to reference during our discussions. They are the same scope tables that you've seen several times over the last year+ with a couple of revisions to reflect year 0 to 10 year scope.

thanks, Amy Brownell, P.E. San Francisco Health Department 1390 Market St., Suite 410 San Francisco, CA 94102 415-252-3967 fax 415-252-3889 amy.brownell@sfdph.org

Amy

Brownell/DPH/SFGO

V

To

melanie.kito@navy.mil,

02/01/2011 05:23 jeff.giangiuli@calibresys.com, PM tim.mower@ttemi.com,

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Suzanne.Hudson@lennar.com, Andrea Bruss/MAYOR/SFGOV@SFGOV

Subject

Regulatory Agency Costs

Melanie, Jeff G, Thomas, Tim and Steve:

As follow-up from our January 6, 2011 technical team conference call, I'm transmitting to you, for your review, the spreadsheet we've developed based on our discussions about Regulatory Agencies expected costs for Parcels B and G. The goal is for us to present these to Reg Agencies to get as much buy-in as we can that this should cover the expected costs that they might incur for oversight of the ETCA tasks. This is an important step in moving towards our ETCA Grant number because if they do not think we are including enough dollars for their oversight then we need to adjust these numbers. More importantly, I do not want to wait for a preliminary indication from insurance because their costs are not insurable and we do not want this extra step of talking to Regulatory Agencies to slow us down in our ETCA grant negotiations.

Please note, we used the information that you gave us on 1/6/2011 to input a formula into Column E

Specifically, you gave us the information that your current basewide monthly costs for each agency were:

EPA = \$25K DTSC = \$25KRWQCB = \$13.3K

and then your best guess of the percentage of these costs that would be attributable to Parcels B and G for the first ten years post early transfer was 40%.

Then we split this 60% to Parcel B and 40% to Parcel G. look at Column E and you will see the formula. Also note that spreadsheet calculates as annual costs.

for years 11 to 20, when there is still development and Parcel B still has groundwater monitoring but AOC would have turned into an O&M agreement, we guessed that the Reg Agency costs would go down significantly to 20% of original basewide estimate.

for years 21 to 100, when the site is built out and the main tasks are 5 year reviews and reviews of annual inspections and reporting, we reduced the estimate to 10% of original basewide estimate.

please let us know no later than February 11th if these Regulatory Agency costs seem reasonable to you so that we can proceed with talking to Reg Agencies. If we need to, we can set up a phone call to discuss further.

thanks, Amy Brownell, P.E. San Francisco Health Department 1390 Market St., Suite 410 San Francisco, CA 94102 415-252-3967 fax 415-252-3889 amy.brownell@sfdph.org

[attachment "Regulatory Agencies cost estimates.xls" deleted by Amy Brownell/DPH/SFGOV]
(See attached file: SFRA Annual Inspections and long term obligations Parcels B G Scope and Reg Agency costs.xls)(See attached file: m11-12 OMB A94.pdf)

# 

# ETCA Grant Scope Parcel B, 100-year Timeframe Hunters Point Shipyard

	San Francisco, California			
WBS Task/				
Subtask	Description and Assumptions	Year	End Year	<b>Discount Rate</b>
PARCEL B				
	Discount Rates, per OMB A94, 2011:			
	3-year rate (use for 1, 2, and 3 years)	0.00%		
	5-year rate	0.40%		
	10-year rate	1.30%		
	20-year rate	2.10%		
	30-year rate	2.30%		
	Project Planning and Scheduling - semi-annual yrs			
1.0	11-30, annual thereafter			
	Scheduling and Progress Reporting	11	100	2.30%
	Database Maintenance	11	100	2.30%
	Administrative Record Support	11	100	2.30%
5.4	Durable Cover - constructed by Mactec			
	Cover Maintenance (annualized cost) -1/3			
	resurface every 10 years	11	100	2.30%
5.7	Long town Croundwater Menitoring			
5.7	Long-term Groundwater Monitoring  Water levels at 31 wells; sampling at 3 wells;			
	, ,			
	analyses per RAMP; semi-annual sampling and			
	annual reporting		0.0	0.000/
	Sampling	11		2.30%
	Data Validation, Reporting, Meeting	11	30	2.30%
5.8	Monitoring Well Maintenance, Abandonment			
	31 wells; maintain for 30 years, abandon at			
	termination of program			
	Annual maintenance (prorated)	11	30	2.30%
	Abandonment, 31 wells	30	30	2.30%
5.9	Five-year Reviews			
0.0	Year 2023 to 2111 (reports produced in 2023,			
	2028, 2033, 2038, 2043, 2048, 2053, 2058, etc)			
	Appualized Cost, Voore 14 to 20		200	0.4007
	Annualized Cost, Years 11 to 20	11		2.10%
	Annualized Cost, Years 21 to 100	21	100	2.30%
5.11	Shoreline Revetment - constructed by Mactec			
J. 1 1	completed by MACTEC; no City cost			
	Annual maintenance (prorated)	11	100	2.30%
	Annual maintenance (profateu)	11	100	2.30%

12/11/2020

### **ETCA Grant Scope**

### Parcel B, 100-year Timeframe

Hunters Point Shipyard

W/D0 T	San Francisco, Californ			
WBS Task/				
Subtask	Description and Assumptions	Year	End Year	Discount Rate
6.0				
	Final Remedial Action Completion Report (RACR)			
	completed largely by Navy and MACTEC; City to			
	submit one final document at completion of			
	groundwater monitoring - may not be called a			
	RACR might be just closeout report			
	Groundwater Monitoring Closeout Report	30	30	2.30%
7.0	Public Involvement - Implementation of CIP			
	assume discontinued after termination of			
	groundwater monitoring program in year 30			
	Fact Sheets - 1 per year	11	30	2.30%
	Public Meetings - 1 per year	11	30	2.30%
5.12	ICs/RMP Implementation & required annual			
	inspections (RMP & O&M) through Year 30			
	Annual Inspection and Reporting			
	Inspection of durable covers, including			
	shoreline and parks - includes RD O&M			
	inspection requirements (Year 1 thru 5)	1	5	0.40%
	(Year 6 thru 10)	6	10	1.30%
	(Year 11 thru 30)	11	30	2.30%
	Inspection of groundwater mtg wells	1	30	2.30%
	Inspection of VMS	1	30	2.30%
	DBI/DPW Permit check	1	30	2.30%
	Summary of FFA notifications and approvals	1	30	2.30%
	Set up web-based system for property owner			
	reporting	1	1	0.00%
	Send automated email/phone reminders and			
	verify receipt of approx 60 Property Owner			
	Reports	1	30	2.30%
	Check electronic reports	1	30	2.30%
	Annual Maintenance of web-based system	1	30	2.30%
	Report Compilation	1	30	2.30%
	Followup to Rectify Identified Problems			
	Continued followup	1	5	0.40%
	Continued followup	6		1.30%
	Continued followup	11		2.30%
	'			

## ETCA Grant Scope Parcel B, 100-year Timeframe Hunters Point Shipyard

San Francisco, California					
WBS Task/	Gair Francisco, Gailloin				
Subtask	Description and Assumptions	Begin Year	End Year	Discount Rate	
	RMP Implementation & required annual				
	inspections (RMP & O&M) - Years 31 to 100				
	Annual Inspection and Reporting				
	Inspection of durable covers, including				
	shoreline and parks - includes RD O&M				
	inspection requirements	31	100	2.30%	
	Inspection of VMS	31	100	2.30%	
	DBI/DPW Permit check	31	100	2.30%	
	Summary of FFA notifications and approvals	31	100	2.30%	
	Send automated email/phone reminders and				
	verify receipt of approx 60 Property Owner				
	Reports	31	100	2.30%	
	Check electronic reports	31	100	2.30%	
	Annual Maintenance of web-based system	31	100	2.30%	
	Report Compilation	31	100	2.30%	
	Followup to Rectify Identified Problems	31	100	2.30%	
	Escrow fee	1	100	2.30%	
	Annual Audit, per ETCA	1	100	2.30%	
	Third and the second se				
II.	ETCA Administrative Support				
	SFRA staff				
	0.50 FTE	1	1	0.00%	
	0.125 FTE	2	10	1.30%	
	0.05 FTE	11	30	2.30%	
	0.025 FTE	31	100	2.30%	
	SFRA contractor, Years 1 - 10				
	Review developer's contractor's invoices	1	10	1.30%	
	Review regulatory agency invoices	1	10	1.30%	
	Check RMP annual rpt completeness	1	10	1.30%	
	Review annual inspection firm's invoices	1	10	1.30%	
	SFRA contractor, Years 11 - 30				
	Review regulatory agency invoices	11	30	2.30%	
	Check RMP annual rpt. completeness	11	30	2.30%	
	Review annual inspection etc. firm's invoices	11	30	2.30%	
	review armaar inspection cto: Illins invoices				
	SFRA contractor, Years 31 - 100				
	•	31	100	2.30%	
	SFRA contractor, Years 31 - 100 Review regulatory agency invoices				
	SFRA contractor, Years 31 - 100	31		2.30% 2.30% 2.30%	

### **ETCA Grant Scope**

### Parcel G, 100-year Timeframe Hunters Point Shipyard

WBS Task/	San Francisco, California	Begin		Discount	
Subtask	Description and Assumptions	Year	End Year	Rate	
PARCEL G					
	Discount Rates, per OMB A94, 2011:				
	3-year rate (use for 1, 2, and 3 years)	0.00%			
	5-year rate	0.40%			
	10-year rate	1.30%			
	20-year rate	2.10%			
	30-year rate	2.30%			
1.0	Project Planning and Scheduling - annual event				
	Scheduling and Progress Reporting	11	100	2.30%	
	Database Maintenance	11	100	2.30%	
	Administrative Record Support	11	100	2.30%	
5.4	Durable Cover - constructed by Mactec				
	Cover Maintenance (annualized cost) -1/3				
	resurface every 10 years	11	100	2.30%	
5.9	Five-year Reviews				
0.0	Year 2023 to 2111 (reports produced in 2023,				
	2028, 2033, 2038, 2043, 2048, 2053, 2058, etc)				
	Annualized Cost, Voors 11 to 20	4.4	20	0.400/	
	Annualized Cost, Years 11 to 20	11	20	2.10%	
	Annualized Cost, Years 21 to 100	21	100	2.30%	

# ETCA Grant Scope Parcel G, 100-year Timeframe Hunters Point Shipyard

Subtask   Description and Assumptions   Year   End Year   Rate	WBS Task/	San Francisco, California	Begin		Discount	
10	Subtask	Description and Assumptions	Year	End Year	Rate	
Inspections (RMP & O&M) through Year 30   Annual Inspection and Reporting   Inspection of durable covers, including parks - includes RD O&M inspection requirements (Year 1 thru 5)   1   5   0.40% (Year 6 thru 10)   6   10   1.30% (Year 6 thru 10)   11   30   2.30%   (Year 11 thru 30)   11   30   2.30%   (Year 11 thru 30)   11   30   2.30%   Inspection of groundwater mtg wells - assume ends when wells abandonned in Year 10   1   10   1.30%   1.30%   (Inspection of VMS   1   30   2.30%   30   2.30%   30   30   3.30%   30   30   30   30   30   30   30	5.12	·				
Annual Inspection and Reporting   Inspection of durable covers, including parks - includes RD O&M inspection requirements (Year 1 thru 5)		·				
Inspection of durable covers, including parks - includes RD O&M inspection requirements (Year 1 thru 5)		, ,				
includes RD O&M inspection requirements (Year 1 thru 5)						
(Year 1 thru 5)         1         5         0.40%           (Year 6 thru 10)         6         10         1.30%           (Year 11 thru 30)         11         30         2.30%           Inspection of groundwater mtg wells - assume ends when wells abandonned in Year 10         1         10         1.30%           Inspection of VMS         1         30         2.30%           DBI/DPW Permit check         1         30         2.30%           Summary of FFA notifications and approvals         1         30         2.30%           Set up web-based system for property owner reporting         1         1         0.00%           Send automated email/phone reminders and verify receipt of approx 70 Property Owner         1         30         2.30%           Check electronic reports         1         30         2.30%           Annual Maintenance of web-based system         1         30         2.30%           Report Compilation         1         30         2.30%           Report Compilation         1         30         2.30%           Followup to Rectify Identified Problems         0         0         0         0         0         0         0         0         0         0         0         0 <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>						
(Year 6 thru 10)		·	1	5	0.40%	
(Year 11 thru 30)		,	6			
ends when wells abandonned in Year 10		,	11	30		
ends when wells abandonned in Year 10						
Inspection of VMS		Inspection of groundwater mtg wells - assume				
DBI/DPW Permit check   1   30   2.30%		ends when wells abandonned in Year 10	1	10	1.30%	
DBI/DPW Permit check		Inspection of VMS	1	30	2.30%	
Summary of FFA notifications and approvals   1   30   2.30%		DBI/DPW Permit check	1	30		
Set up web-based system for property owner reporting		Summary of FFA notifications and approvals	1			
reporting						
Send automated email/phone reminders and verify receipt of approx 70 Property Owner Reports 1 30 2.30% Check electronic reports 1 30 2.30% Annual Maintenance of web-based system 1 30 2.30% Report Compilation 1 30 2.30% Followup to Rectify Identified Problems Continued followup 1 5 0.40% Continued followup 6 10 1.30% Continued followup 1 1 5 0.40% Continued followup 1 1 30 2.30% C			1	1	0.00%	
verify receipt of approx 70 Property Owner Reports						
Check electronic reports						
Check electronic reports		Reports	1	30	2.30%	
Annual Maintenance of web-based system		•	1			
Report Compilation			1			
Followup to Rectify Identified Problems   Continued followup   1   5   0.40%		•	1			
Continued followup						
Continued followup		•	1	5	0.40%	
Continued followup  RMP Implementation & required annual inspections (RMP & O&M) - Years 31 to 100  Annual Inspection and Reporting Inspection of durable covers, including parks - includes RD O&M inspection requirements Inspection of VMS Inspecti		Continued followup	6	10		
inspections (RMP & O&M) - Years 31 to 100  Annual Inspection and Reporting  Inspection of durable covers, including parks - includes RD O&M inspection requirements  Inspection of VMS  Inspection of VMS  DBI/DPW Permit check  Summary of FFA notifications and approvals  Send automated email/phone reminders and verify receipt of approx 70 Property Owner  Reports  Check electronic reports  Annual Maintenance of web-based system  Report Compilation		Continued followup	11	30	2.30%	
inspections (RMP & O&M) - Years 31 to 100  Annual Inspection and Reporting  Inspection of durable covers, including parks - includes RD O&M inspection requirements  Inspection of VMS  Inspection of VMS  DBI/DPW Permit check  Summary of FFA notifications and approvals  Send automated email/phone reminders and verify receipt of approx 70 Property Owner  Reports  Check electronic reports  Annual Maintenance of web-based system  Report Compilation		·				
inspections (RMP & O&M) - Years 31 to 100  Annual Inspection and Reporting  Inspection of durable covers, including parks - includes RD O&M inspection requirements  Inspection of VMS  Inspection of VMS  DBI/DPW Permit check  Summary of FFA notifications and approvals  Send automated email/phone reminders and verify receipt of approx 70 Property Owner  Reports  Check electronic reports  Annual Maintenance of web-based system  Report Compilation		RMP Implementation & required annual				
Annual Inspection and Reporting Inspection of durable covers, including parks - includes RD O&M inspection requirements 31 100 2.30% Inspection of VMS 31 100 2.30% DBI/DPW Permit check 31 100 2.30% Summary of FFA notifications and approvals 31 100 2.30% Send automated email/phone reminders and verify receipt of approx 70 Property Owner Reports 31 100 2.30% Check electronic reports 31 100 2.30% Annual Maintenance of web-based system 31 100 2.30% Report Compilation 31 100 2.30%						
includes RD O&M inspection requirements         31         100         2.30%           Inspection of VMS         31         100         2.30%           DBI/DPW Permit check         31         100         2.30%           Summary of FFA notifications and approvals         31         100         2.30%           Send automated email/phone reminders and verify receipt of approx 70 Property Owner         31         100         2.30%           Reports         31         100         2.30%           Check electronic reports         31         100         2.30%           Annual Maintenance of web-based system         31         100         2.30%           Report Compilation         31         100         2.30%						
Inspection of VMS		Inspection of durable covers, including parks -				
Inspection of VMS			31	100	2.30%	
DBI/DPW Permit check         31         100         2.30%           Summary of FFA notifications and approvals         31         100         2.30%           Send automated email/phone reminders and verify receipt of approx 70 Property Owner         31         100         2.30%           Reports         31         100         2.30%           Check electronic reports         31         100         2.30%           Annual Maintenance of web-based system         31         100         2.30%           Report Compilation         31         100         2.30%		Inspection of VMS	31	100		
Summary of FFA notifications and approvals  Send automated email/phone reminders and verify receipt of approx 70 Property Owner  Reports  Check electronic reports  Annual Maintenance of web-based system  Report Compilation  31 100 2.30%  32 2.30%  33 100 2.30%  34 2.30%  35 2.30%		DBI/DPW Permit check	31	100		
verify receipt of approx 70 Property Owner         31         100         2.30%           Reports         31         100         2.30%           Check electronic reports         31         100         2.30%           Annual Maintenance of web-based system         31         100         2.30%           Report Compilation         31         100         2.30%		Summary of FFA notifications and approvals	31	100		
Reports       31       100       2.30%         Check electronic reports       31       100       2.30%         Annual Maintenance of web-based system       31       100       2.30%         Report Compilation       31       100       2.30%		Send automated email/phone reminders and				
Reports       31       100       2.30%         Check electronic reports       31       100       2.30%         Annual Maintenance of web-based system       31       100       2.30%         Report Compilation       31       100       2.30%		verify receipt of approx 70 Property Owner				
Check electronic reports         31         100         2.30%           Annual Maintenance of web-based system         31         100         2.30%           Report Compilation         31         100         2.30%			31	100	2.30%	
Annual Maintenance of web-based system         31         100         2.30%           Report Compilation         31         100         2.30%		·	31	100		
Report Compilation 31 100 2.30%		-	31	100		
		•				

### **ETCA Grant Scope**

### Parcel G, 100-year Timeframe

### Hunters Point Shipyard

WBS Task/	San Francisco, California	Begin		Discount
Subtask	Description and Assumptions	Year	End Year	Rate
	Escrow fee	1	100	2.30%
	Annual Audit, per ETCA	1	100	2.30%
II.	ETCA Administrative Support			
	SFRA staff			
	0.50 FTE	1	1	0.00%
		•	-	0.0070
	0.125 FTE	2	10	1.30%
	0.05 FTE	11	30	2.30%
	0.025 FTE	31	100	2.30%
	SFRA contractor, Years 1 - 10			
	Review developer's contractor's invoices	1	10	1.30%
	Review regulatory agency invoices	1	10	1.30%
	Check RMP annual rpt completeness	1	10	1.30%
	Review annual inspection firm's invoices	1	10	1.30%
	SFRA contractor, Years 11 - 30			
	Review regulatory agency invoices	11	30	2.30%
	Check RMP annual rpt. completeness	11	30	2.30%
	Review annual inspection etc. firm's invoices	11	30	2.30%
	SFRA contractor, Years 31 - 100			
	Review regulatory agency invoices	31	100	2.30%
	Check RMP annual rpt. completeness	31	100	2.30%
	Review annual inspection etc. firm's invoices	31	100	2.30%

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### OFFICE OF THE PRESIDENT OFFICE OF MANAGEMENT AND BUDGET WASHINGTON, D.C. 20503

February 3, 2011

M-11-12

### MEMORANDUM FOR THE HEADS OF DEPARTMENTS AND AGENCIES

FROM: Jacob J. Lew

Director

SUBJECT: 2011 Discount Rates for OMB Circular No. A-94

On October 29, 1992, OMB issued a revision to OMB Circular No. A-94, "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs." The revision established new discount rate guidelines for use in benefit-cost and other types of economic analysis.

The revised Circular specifies certain discount rates that will be updated annually when the interest rate and inflation assumptions in the budget are changed. These discount rates are found in Appendix C of the revised Circular. The attachment to this memorandum is an update of Appendix C. It provides discount rates that will be in effect for the calendar year 2011.

The rates presented in Appendix C do not apply to regulatory analysis or benefit-cost analysis of public investment. They are to be used for lease-purchase and cost-effectiveness analysis, as specified in the Circular.

Attachment

### APPENDIX C

(Revised December 2010)

### DISCOUNT RATES FOR COST-EFFECTIVENESS, LEASE PURCHASE, AND RELATED ANALYSES

<u>Effective Dates</u>. This appendix is updated annually. This version of the appendix is valid for calendar year 2011. A copy of the updated appendix can be obtained in electronic form through the OMB home page at <a href="www.whitehouse.gov/omb/circulars-a094/a94-appx-c">www.whitehouse.gov/omb/circulars-a094/a94-appx-c</a>, the text of the main body of the Circular is found at <a href="http://www.whitehouse.gov/omb/circulars-a094/">http://www.whitehouse.gov/omb/circulars-a094/</a>, and a table of past years' rates is located at <a href="www.whitehouse.gov/sites/default/files/omb/assets/a94/dischist.pdf">www.whitehouse.gov/sites/default/files/omb/assets/a94/dischist.pdf</a>. Updates of the appendix are also available upon request from OMB's Office of Economic Policy (202-395-3381).

<u>Nominal Discount Rates</u>. A forecast of nominal or market interest rates for 2011 based on the economic assumptions for the Fiscal Year 2012 Budget are presented below. These nominal rates are to be used for discounting nominal flows, which are often encountered in lease-purchase analysis.

### Nominal Interest Rates on Treasury Notes and Bonds of Specified Maturities (in percent)

3-Year	<u>5-Year</u>	<u>7-Year</u>	<u> 10-Year</u>	<u> 20-Year</u>	<u>30-Year</u>
1.4	1.9	2.4	3.0	3.9	4.2

**Real Discount Rates**. A forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions from the 2012 Budget is presented below. These real rates are to be used for discounting constant-dollar flows, as is often required in cost-effectiveness analysis.

### Real Interest Rates on Treasury Notes and Bonds of Specified Maturities (in percent)

<u>3-Year</u>	<u>5-Year</u>	<u>7-Year</u>	<u> 10-Year</u>	<u> 20-Year</u>	<u>30-Year</u>
0.0	0.4	0.8	1.3	2.1	2.3

Analyses of programs with terms different from those presented above may use a linear interpolation. For example, a four-year project can be evaluated with a rate equal to the average of the three-year and five-year rates. Programs with durations longer than 30 years may use the 30-year interest rate.